SP-T7 Project Effects on Noxious Terrestrial and Aquatic Plant Species

October 25, 2002

1.0 Introduction/Background

Non-native, invasive plant species can have a significant impact on both human and environmental resources. Areas where vegetation and soils have been disturbed are much more susceptible to invasion by noxious weeds than natural environments. Aggressive noxious weeds crowd out native vegetation, alter the natural environment and habitat for wildlife species, as well as impacting agricultural water-use efficiency and recreational land values.

In 1999, Executive Order 13112 was signed establishing the National Invasive Species Council to help prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. The Federal Noxious Weed Act of 1974 (as amended) requires federal land managing agencies to establish and fund programs to manage undesirable plants. The California Food and Agriculture Code Section 403 requires that Department to "prevent the introduction and spread of injurious insect and animal pest, plant diseases, and noxious weeds" and Senate Bill 1740 addresses noxious weed control, mapping, and education In Butte County, the Weed Management Area (BWMA), under direction of the County Agricultural Commissioner's Office, is coordinating efforts to control aggressive weed expansion, increase public awareness, and establish a database of weed locations throughout the county. The Department of Water Resources is working with the BWMA in its efforts to prevent the spread of and to control noxious weeds. Purple loosestrife, an aggressive weed along waterways in and near the project area, has been mapped by the California Department of Food and Agriculture in cooperation with the Butte County Agricultural Office and other State offices.

Relicensing participants have identified the land management practices, the associated clearing of land within the project boundary and the altered hydrology downstream of the Oroville Facilities as potential effects of the project on noxious weeds.

2.0 Study Objectives

The objectives of this study are to 1) provide sufficient information allowing State and Federal agencies to comply with State and Federal noxious weed legislation; related to permitting activities associated with relicensing activities; 2) allow for habitat analysis of species listed under the Endangered Species Acts; and 3) address the concerns of stakeholders relating to the infestation and spread of noxious weeds associated with ongoing and future project operation and maintenance activities; and 4) to provide information to use to identify potential protection, mitigation, and enhancement measures.

3.0 Relationship to Relicensing /Need for the Study

Relicensing participants have identified land management practices, clearing of land within the project boundary, and altered hydrology downstream of the Oroville Facilities as activities that have the potential to affect noxious weeds. Non-native plant species can adversely impact native plant species and communities (including State and federally listed species) through competition. The federal Endangered Species Act requires an evaluation of project-related impacts to federally listed species through competition and habitat degradation. This includes land disturbances and other project operations that favor non-native species over listed species and project operations that influence the dispersal of noxious weed species into downstream waters.

The maps produced from this study will provide information on the distribution and extent of noxious weed locations within the project area. This information will help address continuing effects to native plant and animal habitats and riparian resources from water fluctuations, recreation, and other project-related activities. This data, together with other study results, will provide baseline conditions for assessing potential management actions.

These mapping efforts will be coordinated with mapping studies in SP T4 (vegetation and wildlife habitat) and in conjunction with other plant species inventories produced in SP T1 and SP T2. This information will provide relicensing participants with information on the distribution of noxious weeds in areas affected by project operations as well as their life history and dispersal mechanisms relative to project-related land management practices.

4.0 Study Area

The study area will include all areas within 0.5 miles of the Oroville Facilities Project boundary, including associated irrigation canals, and downstream Feather River levees to the confluence with the Yuba River. Surveys may be expanded if survey data and information gathered indicate project-related effects influence the dispersal and establishment of noxious weeds further downstream. Study plans approved by the Environmental Work Group define the limits of the study area. If initial study results indicate that the study area should be expanded or contracted, the Environmental Work Group will discuss the basis for change and revise the study area as appropriate.

5.0 General Approach

If initial study results indicate that the methods and tasks described below should be modified, the Environmental Work Group will discuss the basis for change and revise the study plan as appropriate.

Task 1– Literature search and list of high priority noxious weed species expected to occur within the study area.

A list of noxious weed species that have potential for occurring in the project-affected area is presented in Table 1. This list has been developed from the California Department of Food and Agriculture, California

Exotic Plant Pest Council, the U.S. Department of Agriculture, and the Plumas National Forest lists and will be updated to include additions or status changes. Literature surveys will be conducted and information will be gathered on the biology and ecology of noxious weed species, as well as information on dispersal mechanisms in relation to project operations.

Table 1. Noxious weed species that have potential for occurring in the Oroville Facilities Project area.

Scientific Name Common Name	CDFA List[1]	CalEPPC List[2]	Habitat (elevation)
Ailanthus altissima Tree of heaven	A	A-2	Disturbed urban areas, waste places, riparian areas, grasslands (<1250m)
Arundo donax Giant reed	A	A-1	Moist places, seeps, ditchbanks (<500m)
Brassica nigra Black mustard		B	Fields, disturbed areas (<1500m)
Bromus madritensis ssp. rubens Red brome		A-2	Open, disturbed places (<2200m)
Cardaria chalepensis Lens-podded hoarycress	B	B	Disturbed, gen saline soils, fields (<1500m)
Cardaria pubescens Whitetop	B		Saline soils, fields, ditchbanks (<2000m)
Carduus pycnocephalus Italian thistle	C	B	Roadsides, pastures, waste areas (<1000m)
Centaurea maculosa Spotted knapweed	A	Red Alert	Disturbed areas (<2000m)
Centaurea solstitialis Yellow starthistle	C	A-1	Pastures, roadsides, disturbed grassland or woodland (<1300m)
Cirsium arvense Canada thistle	B	B	Disturbed places (<1800m)
Convolvulus arvensis Field bindweed	C		Orchards, gardens (gen <1500m)
Cortaderia selloana Pampas grass		A-1	Disturbed sites (<300m)
Cynodon dactylon Bermuda grass	C		Disturbed sites (<900m)
Cytisus scoparius Scotch broom	C	A-1	Disturbed places (<1000m)
Ficus carica Edible fig		A-2	Disturbed, moist areas (<800m)
Foeniculum vulgare Wild fennel		A-1	Roadsides, waste places (<350m)

Genista monspessulana French broom	C	A-1	Disturbed places in foothills (<550m)
Hypericum perforatum Klamathweed	C	B	Pastures, abandoned fields, disturbed places (<1500m)
Lepidium latifolium Broad-leaved peppergrass	B	A-1	Saline soil, roadsides (<1900m)
Linaria genistifolia ssp. dalmatica Dalmation toadflax	A		Disturbed places, pastures, fields; (gen <1000m)
Lythrum salicaria Purple loosestrife	B	Red Alert	Marshes, ponds, streambanks, ditches (<1000m)
Myriophyllum aquaticum Parrot's feather	B	B	Ponds, ditches, streams, lakes, (<500m)
Rubus discolor Himalayan blackberry		A-2	Disturbed moist areas (<1600m)
Salsola paulsenii Tumbleweed	C		Disturbed places (700-1800m)
Solanum elaeagnifolium Hoary horsenettle	B		Dry, disturbed places fields (<1200m)
Sorghum halepense Johnson grass	C		Disturbed areas, ditchbanks, roadsides (<800m)
Taeniatherum caput-medusae Medusa-head	C	A-2	Grassy slopes and flats
Tamarix parviflora, T. ramosissima Tamarisk, salt cedar		A-2	Washes, streambanks, ditches (<800m)
Tribulus terrestris Puncturevine	C		Roadsides, railways, vacant lots, dry, disturbed areas (<100m)
Vinca major Periwinkle		BC	Sheltered places, especially along streams (2-200m)

[1]California Department of Food & Agriculture List of Noxious Weeds: List A - Most invasive wildland pest plants - eradication, containment or other holding action at the state-county level; List B - Includes species less widespread and more difficult to contain - eradication, containment, control or other holding action at the discretion of the Commissioner: List C - Weeds that are so widespread that the agency does not endorse state or county-funded eradication except in nurseries.
[2]California Exotic Pest Plant Council List of Exotic Pest Plants of Greatest Ecological Concern: List A-1 - Most invasive wildland pest plants, widespread; List A-2 - Most invasive wildland pest plants, regional; List B: Wildland pest plants of lesser invasiveness; List Red Alert: Species with potential to spread explosively, infestation currently restricted.

Task 2 –Species Survey and Data Collection

Surveys will be conducted concurrently with floristic and special status plant species surveys. All weed species and non-native plant species will be noted in the floristic surveys. However, only high priority species

will be mapped. This will include CDFA List A and B, Cal EPPC List A1/2 and Red Alert species, and other species of concern to local irrigation districts and State or Federal agencies. All species on the USFS noxious weed lists will be surveyed for on National Forest Lands within the study area. Voucher specimens for these species, when collected, will be deposited with the Feather River Ranger District. All other voucher specimens will be deposited with CSU Chico Herbarium. Surveys will be conducted during the appropriate time of year for proper identification of each species.

Data will be collected by hand mapping on 1:24,000 USGS topographic maps and/or by using a Trimble GeoExplorer or equivalent Global Positioning System (GPS) Unit. According to weed mapping standards, data will be collected as points, lines (such as along a road or river corridor) or as area features. Point infestations include area classes of

- <0.1 acre
- 0.1 to 1 acre
- 1 to 5 acres

Line infestations will be represented by a line with a representative width to determine acreage. Polygons will be used for infestations that are more than 5 acres in size. The following cover classes (percent coverage) will be used to describe the density of the infestations.

T = (Trace; rare): less than 1% cover
L = (Low; occasional plants): between 1 and 5% cover
M = (Moderate; scattered plants): between 5 and 25% cover
H = (High; fairly dense): between 25 and 100 % cover

Task 3 –Weed Mapping and Coverage Tables

The information collected will be entered into a Geographic Information System (GIS) using ArcView software. Maps of noxious weed species distribution and acreages of each coverage will be produced.

Task 4—Evaluation and Management Strategies

These data, together with species information, will be evaluated relative to dispersal mechanisms, project-related land management practices and project operations. Should noxious weeds be identified as a concern downstream of the Oroville Facilities, the effects of altered hydrology as a primary dispersal mechanism via the discharge from the project will be assessed. Management strategies for controlling noxious weed species in cooperation with other county and State efforts will be identified and analyzed. This evaluation will include a discussion of economic benefits due to noxious weed populations, as well as, adverse effects on native vegetation.

Task 5 – Summary Report

A final report will be prepared summarizing project-related impacts on the distribution and spread of noxious weeds and potential protection, enhancement, and mitigation measures.

6.0 Results and Products/Deliverables

Results

The results of this investigation will be summarized in a report and will include the following: 1) identification of the high priority noxious weed species considered high priority species that have potential for occurring in or adjacent to the project area and project-affected downstream waters that may be affected by project operations; 2) an inventory and map of high priority noxious plant species in the study area; 3) information on the life history and dispersal mechanisms of the target species; 4) an evaluation of the project-related land management practices and project operations in relation to presence and dispersal of noxious weed species; 5) management strategies for controlling noxious weed species on project lands and for controlling their dispersal onto adjacent lands and downstream waters such as irrigation releases; and 6) information on the economic use of noxious weed species within and near the project boundaries.

Products/Deliverables

A GIS map and acreage tables of noxious weed locations will be produced in this study. A summary report will include the location data, information on the life history and dispersal mechanisms of the target species, and an evaluation of land management practices and project operations such as altered hydrology, recreational impacts, and operation and maintenance activities on the dispersal of these species. Management strategies will be addressed for controlling the further spread of and to control noxious weed populations within the project boundary, on adjacent lands, and downstream waters.

7.0 Coordination and Implementation Strategy

Coordination with Other Resource Areas/Studies

Information will be needed from the Recreation Work Group (SP-R5, SP-R9, SP-R10, and SP-T17), Engineering and Operations Work Group (SP-E2 and SP-E4), and Land Use Work Group (SP-L1 and SP-L2) for the evaluation of project-related operations on the potential for project-related distribution and dispersal of noxious weeds.

Issues, Concerns, Comments Tracking, and/or Regulatory Compliance

This study fully or partially addresses the following Stakeholder issues:

Stakeholder issues fully addressed by SP-T7 Project Effects on Noxious Terrestrial and Aquatic Plant Species

- TE30a—inventory and map alien plant and animal species
- TE30b—there is an interest in determining locations of noxious weeds within and adjacent to the project area and determining control and eradication measures as needed. Inventory plants located on National Forest system lands within and adjacent to project facilities as well as the perimeter of Lake Oroville. Survey for California Department of Food and Agriculture Category A, B and C noxious weeds.

- TE31—remove non-native plant species around lake, river, forebay and afterbay areas especially star thistle, ailanthus, and other invasive plant species
- TE42—include aquatic species of non-native plants

Stakeholder issues partially addressed by SP-T7 Project Effects on Noxious Terrestrial and Aquatic Plant Species

- TE40—native plant landscaping (potential sites: Feather River Fish Hatchery, State Parks Headquarters, DWR Field Office, Spillway Launch Facility – future) and restoration of native plant communities
- TE47—continue inventory of plant and animal species in the project area
- TE51—restoration of areas used as stockpile sites during dam construction

8.0 Study Schedule

Task 1 will be completed in June 2002. Surveys in Task 2 will be conducted from March through August of 2002 in conjunction with SP-T1, SP-T2, SP-T3/5, SP-T4, and SP-T10 studies. Follow-up surveys under Task 2 will be completed in August 2003. Maps produced under Task 3 will be completed by September 2003. An interim report will be produced in January 2003. Task 4 and a draft report will be completed by September 2003. Task 5 will be completed in September 2004.